

IN THE CLAIMS:

Cancel claims 1-21 without prejudice.

1. (Cancelled)
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19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Previously Presented) An apparatus for analyzing microarray images, the apparatus comprising:
 - means for receiving data from a microarray process,
 - means for modeling the microarray process to define a microarray model comprising at least one of target distribution defining a first independent sub-model and probe distribution defining a second independent sub-model,
 - means for comparing the received data with the microarray model in order to extract information from the data, and
 - means for outputting the information.
23. (Previously Presented) An apparatus according to claim 22, wherein the data is received from a channel corresponding to a control target sample and a channel corresponding to a test target sample.
24. (Currently Amended) An apparatus according to claim 22, wherein the microarray process ~~is~~ comprises a DNA microarray process.
25. (Currently Amended) An apparatus according to claim 22, wherein the extracted information ~~is~~ comprises gene expression information.
26. (Currently Amended) An apparatus according to claim 22, wherein the means for modeling further comprises means for modeling the interaction between the background distribution of the received signal and at least one of target distribution and ~~probe~~ probe distribution.

27. (Previously Presented) An apparatus according to claim 22, wherein the means for modeling further comprises means for modeling fluorescence to define a third independent sub-model.

28. (Currently Amended) An apparatus according to claim 22, wherein the means for modeling further comprises means for modeling ~~hybridization~~ hybridization to define a fourth independent sub-model.

29. (Previously Presented) An apparatus according to claim 22, wherein the means for modeling further comprises means for modeling spatial variation of target concentration.

30. (Previously Presented) An apparatus according to claim 22, wherein the means for comparing further comprises means for comparing the received image data with the microarray model in order to predict missing data.

31. (Previously Presented) An apparatus according to claim 22, wherein the means for modeling further comprises means for modeling detector nonlinearity.

32. (Currently Amended) An apparatus according to claim 22, wherein the data received from the microarray process ~~is~~ comprises image data.

33. (Currently Amended) An apparatus according to claim 22, wherein the data received from the microarray process ~~is~~ comprises pre analyzed data.

34. (Previously Presented) An apparatus according to claim 22, wherein the model includes information about statistical similarity in the spot profile corresponding to each detector due to the spot profiles being formed from a common probe.

35. (Previously Presented) An apparatus according to claim 27, wherein the third independent sub-model includes information on the effect of DNA sequence on fluorescence.